# Risk Management: Guidelines and Best Practices

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## Table of Contents



Risk Management recognizes that a problem might occur.

# Risk Management: Guidelines and Best Practices

## Executive Summary

The risk management policy requires that risks associated with Information Technology projects must be identified, analyzed, and prioritized. Identified risks must be controlled through the processes of project planning and project tracking and oversight. Risk identification and management are integrated components of project management and must be continuously assessed and analyzed during the life of a project. The project manager acts as the risk analyst unless the identified risks are significant enough to designate an individual for the responsibility of risk management on a project.

Risks must be controlled through the processes of project planning and project tracking and oversight.

Purpose

To ensure that risks associated with a project are well understood so they can be managed, planned for, and mitigated during the execution of the project.

# Risk Management: Guidelines and Best Practices

## Overview

A risk is any factor that has the possibility of causing harm and/or loss to the project. A risk is also any factor that might keep the project from obtaining its objective(s). The existence of risk is not a bad thing; in fact, there probably is no project that is "risk free".

However, the absence of risk analysis and mitigation strategies, including plans of action where appropriate, is not a good thing. The challenge is to fully identify as many risks as possible, and invest in managing their impact rather than ignoring them.

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Part of controlling a project during the performance life cycle phases is to have an established risk management process that is unique to the project. Risk management involves the following risk phases:

- Risk Identification
- Risk Analysis
- Risk Mitigation and Planning
- Risk Response

Risk management includes the following risk components:

- Determine the project objectives and each major stakeholder
- Identify as many risks as possible
- Analyze the risks
  - Probability of occurrence
  - Consequence of occurrence
  - Total Risk Exposure

The risk management plan documents the procedures that will be used to manage risk throughout the project.

- Review of the risk analysis
  - Including stakeholders
- Evaluate mitigation strategies
  - Risk Reduction
  - Risk Protection
  - Risk Transfer
  - Risk Contingency
  - Risk Acceptance
- Develop risk mitigation plan of action
- Mitigate risk
  - Monitor Risk
  - Implement plan of action when appropriate

The risk management plan documents the procedures that will be used to manage risk throughout the project. In addition to documenting the results of the risk identification, it covers who is responsible for managing various areas of risk, how risks will be tracked throughout the project, and how plans of action will be implemented.

Risk management is an assessment tool that may be used in the project oversight process. The RMP should, at a minimum, include the following information:

- Purpose and scope
- Risk management methodology
- Overview or summary of risk
- Risk identification
- Risk analysis
- Risk response planning
- Risk monitoring and controls

# Risk Management: Guidelines and Best Practices

## Program Information

The procedure that the project team will use to manage project risks is defined in the planning stage, documented in the project plan, and executed throughout the life of the project. The scope of the risk management plan is dependent on the size, cost, complexity, and impact on the business of the agency. State agencies will practice good risk management procedures for information technology projects and should apply risk management processes that are appropriate to the specific project.

All projects that require Decision Item funding must have available a Risk Management Plan, in addition to completing the Form 5.

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# Risk Management: Guidelines and Best Practices

## Program Information – Minimum Requirements

Purpose and scope

> Include the purpose for the project and the scope of the project. This may include a brief description of the project, the project sponsors, and project management.

Risk management methodology

> Describe the approaches, tools, and data sources that may be used to perform risk management on this project. For example: Brainstorming; Delphi Technique; Interviewing; etc.

Overview or summary of risk

> Include a brief description and/or summary of the most likely (top 5) risks to the project.

Risk identification

> Include a listing of risks to the project and the probability of those risks occurring on the project.

Risk analysis

> Include a listing of risks in priority and/or probability order (high, medium, low) with reference to contingency and preventive measures for each risk.

Risk response planning

Include or make reference to mitigation / resolution strategies for those high priority (top 5) risks. It is recommended the strategy include where, when, and to what extent the risk will impact the project. It should also include how to handle the risk, i.e. eliminate, reduce or accept the risk.

Risk Monitoring and Control

Include or make reference to monitoring / control strategies such as workaround plans, corrective actions, change requests, updates to risk plans, risk identification checklists, etc.

# Risk Management: Guidelines and Best Practices

## Best Practices – Risk Management Planning

Identify Risks

A risk is any factor that may potentially interfere with successful completion of the project. Risk management recognizes that a problem might occur. When a problem develops, the risk of it happening is 100%. By recognizing potential problems, the project manager can attempt to avoid a problem through proper actions.

A risk is any factor that may potentially interfere with successful completion of the project.

Risks are inherently involved with scheduling resources. Sound resource planning makes allowances for dealing with risks in one or more of the following ways:

- The most recommended technique for risk allowance is to add an additional WBS task for risk management/risk reduction, and financial reserves can be set aside to deal with potentially delayed schedules.
- Add time to those tasks where resources are known to be a problem. There is no rule of thumb for this multiplier; it depends on the degree of risk and the overall impact that resource problems can have on the project. The cost for this task would be derived from the Total Risk Hours from the Risk Analysis Worksheet.
- Add a percentage time multiplier to the schedule for specific individuals, particularly if new technology is being used or if the person providing the estimate is extremely optimistic. Remember that technical staff typically underestimates the time required to do any particular task.

- Where skill shortage is identified, add time and resources for training. By recognizing resource shortfalls and providing the necessary training, a project manager mitigates some level of risk.

The procedure that the team will use to manage project risks is defined in the planning stage, documented in the project plan, and then executed throughout the life of the project.

Risk Management Process

The procedure that the team will use to manage project risks is defined in the planning stage, documented in the project plan, and then executed throughout the life of the project. Risk management deals with the following risk phases:

- Risk identification
- Risk analysis, quantification and prioritization
- Risk mitigation planning
- Risk response

The Risk Management Plan i.e. Risk Management Worksheet, documents the procedures used to manage risk throughout the project. In addition to documenting the results of the risk identification and analysis phases, it must cover who is responsible for managing various areas of risk, how risks will be tracked throughout the life cycle, how contingency plans will be implemented, and how project resources will be allocated to handle risk.

Project risks are identified and carefully managed throughout the life of the project. It is particularly important in the planning stage to document risks and identify reserves that have been applied to the risks.

There are various areas that can affect a project, including:

- The technology used on the project
- The environment in which the project is executed

- Relationships between team members
- How well the project fits the culture of the enterprise
- How great a change will result from the project?

Risk identification consists of determining risks that are likely to affect the project and documenting the characteristics of those risks. Don't try to identify all possible risks that might affect the project, but focus on those likely to affect the project's success.

Responsibility for Risk Identification

The project manager is responsible for tracking risks and for developing contingency plans.

All members of the project team can identify risk, but the project manager has overall responsibility. The project manager is responsible for tracking risks and for developing contingency plans. Sometimes a risk identification "brainstorming" session can help in the initial identification process. Such meetings help team members understand various perspectives and can help the team members better understand the "big picture."

Risk identification begins in the early planning phase of the project. A Risk Management Worksheet (shown later in this section) is started during the planning phase. Then, as scheduling, budgeting, and resource planning occur, the worksheet is updated to reflect further risks identified in the planning stage.

At project startup, the Risk Management Worksheet is reviewed again, and any new risks are added to it. As the project progresses, members of the team identify new risk areas that are added to the Risk Management Worksheet. Also during the project, risks identified earlier may be removed.

Risks are documented so that contingency measures can be taken to mitigate their effects. Risks to both the internal and external aspects of the project should be tracked. Internal risks are those items the project team can directly control (e.g., staffing), and external risks are those events that happen outside the direct influence of the project team (e.g., legislative action).

Contingency plans are pre-defined action plans that can be implemented if identified risks actually occur.

## Contingency Planning

Contingency plans are developed as a result of a risk being identified. Contingency plans are pre-defined action plans that can be implemented if identified risks actually occur. If a problem actually occurs, the contingency plan must be implemented and reserves must be allocated.

As a guideline, contingency plans are developed for the top five risks associated with a project. For large projects the top five risks of each major sub-system may be actively tracked. To properly implement a plan, a reserve is usually required where dollars and/or time are held by a project manager to apply to the execution of a contingency plan. Such contingency reserves are discussed in the appropriate sections of planning. Without maintaining a reserve, the project manager is forced to go back for additional time or dollars for every risk as it becomes a problem. It is far more desirable to maintain a level of reserve where problems can be dealt with from within the original budget and schedule of the project.

There are some situations where nothing can realistically be done to prevent or deal with a risk. In this case, the project must be managed in such a way that the probability of the event occurring is minimized. If the event does occur, the project manager must replan the project and include the effect of the problem.

# Risk Management: Guidelines and Best Practices

## Risk Management Worksheets

## Risk Management Worksheet Instructions

The risk categories/events shown on the Risk Management Worksheet are provided for guidance, and do not represent an exhaustive list of risks. The risk categories/events should be customized for each individual project.

The project manager, with the support of the project team, then evaluates each risk event for the following:

**Loss Hours:** Indicate the expected increase in hours that will occur if the risk event occurs.

**Probability:** Use the probability field to quantify the chance of the event taking place. Use a decimal value from 0 to 1 (e.g. .70).

**Risk Hours:** This field represents the estimated risk for this event. The field is calculated by multiplying the loss and the probability fields.

**Previous Risk Hours:** This field represents the value of risk hours reported in the previous period of the Execution Phase. A difference between this value and the current risk hours indicates a change in the risk status and is used to alert management that a change has occurred.

**Preventative Measures and Contingency Measures:** The next two columns document the planned preventative and contingency measures that could minimize the effect of the risk event. The measures shown in the next figure are representative of common contingency measures, but are not an exhaustive list. The project manager should provide specific contingency plans for the specific project.

**Responsible Person:** The individual assigned to track, report on or manage this specific risk.

**Comments:** The comments column should be used to document items such as a change in value of risk hours from the previous period, management actions needed to contain risk, and status of preventive and contingency plans.

**Total:** The sum total of values in column four is the total risk hours for the project and should be reported in the project plan. This total should be multiplied by a blended rate for personnel and included in the WBS, Schedule and/or Project Estimate Summary Worksheet.

## *Risk Management Worksheet*

*A description of all risks identified for the project, the probability of the risk occurring, the impact of the risk on the project, and the suggested mitigation activities.*

Last Risk Assessment Date: Prepared by:

| *Ref #* | *Risk Category/ Event* | *Loss Hours* | *Probability* | *Risk Hours* | *Previous Risk Hours* | *Preventive Measures* | *Contingency Measures* | *Responsible Person* | *Comments* |
|---|---|---|---|---|---|---|---|---|---|
| | **Personnel** | | | | | | | | |
| 1 | Lack of knowledge in this hw/sw | 200 | .10 | 20 | | 1, 2 | | Developme nt Manager | |
| 2 | Insufficient resources available | 400 | .25 | 100 | | 13 | | Developme nt Manager | |
| | **Equipment** | | | | | | | | |
| 3 | Delivery date slip | 100 | .25 | 25 | | | 3, 4 | Purchasing | |
| 4 | Insufficient configuration | 100 | .15 | 15 | | 5, 6 | 3, 4 | Technical Architect | |
| | **Customer** | | | | | | | | |
| 5 | Infighting | 150 | .2 | 30 | | 7 | 8 | Project Manager | |
| 6 | Unacceptable working environment | 200 | .3 | 60 | | 9 | 8 | Project Sponsor | |
| 7 | Third party involvement | 300 | .1 | 30 | | 14, 15 | | Steering Committee | |
| 8 | Customer availability | 250 | .25 | 63 | | 7, 16 | 29 | Project Sponsor | |
| | **Logistics** | | | | | | | | |
| 9 | Multiple customer sites | 300 | .2 | 60 | | 20, 21, 22 | | | |
| 10 | Physical | 200 | .2 | 40 | | 20, 21, | | Project | |

| Ref # | Risk Category/ Event | Loss Hours | Probability | Risk Hours | Previous Risk Hours | Preventive Measures | Contingency Measures | Responsible Person | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | separation of team and customer | | | | | 22, 23 | | Sponsor | |
| | **Organization** | | | | | | | | |
| 11 | Team > 10 | 200 | .2 | 40 | | 24, 25 | | Project Manager | |
| 12 | Customer people on team | 300 | .3 | 90 | | 26 | | Project Sponsor | |
| | **Other** | | | | | | | | |
| | | | | | | | | | |
| | **TOTAL RISK HOURS** | | | 573 | | | | | |

***Risk Reserve*** $22,920 at $40 average hourly cost

## *Suggested Preventive and Contingency Measures*

1. Provide appropriate training.
2. Hire trained specialists.
3. Install temporary hardware.
4. Utilize internal hardware temporarily.
5. Purchase additional equipment.
6. Implement product functionality in a phased manner.
7. Get agreement on who has decision authority; designate key user responsibility.
8. Locate project team in our offices.
9. Negotiate better environment.
10. Ensure that all the resources are provided.
11. Suggest/sell Functional Specifications before development.
12. Unilaterally develop Functional Specifications.
13. Adjust deadline and get our customer buy-in.
14. Do not commit to third-party performance.
15. Get third party commitment at least equal to (if not more than) our commitment.
16. Get customer commitment to participate in the project.
17. Increase estimates for the related tasks.
18. Do not commit to response time unless absolutely necessary and, then only if a study is done by knowledgeable persons.
19. Establish access to product support personnel.
20. Hold regular meetings with customer.
21. Maintain constant written and oral communication with remote personnel.
22. Visit remote sites as needed.
23. Demonstrate incremental results.
24. Divide staff into teams and assign team leaders.
25. Dedicate our management resources.
26. Establish final authority of our project manager.
27. Use proven hardware for development if possible.
28. Reduce functionality to meet deadline.

29. Document our assumptions and understandings and get Customer's sign-off before investing substantial resources.
30. Design an alternate (contingent) solution strategy.

## *Risk Identification Summary (Top Five Risk)*

| Category | Prob | Imp | Risk | Mitigation Approaches |
|---|---|---|---|---|
| MANAGEMENT | | | | |
| Personnel Availability | High | Med | Personnel developing the system did not participate in the design effort, resulting in less understanding of the system functionality. | Ensure that specifications/overview documents contain sufficient information to allow new personnel to understand system. |
| Personnel Skills | Low | High | Personnel assigned to project will not have skills to perform work | Since contractor provided quality personnel in design effort, anticipate that skills will be met. |
| Schedule | Med | High | Completed system (i.e., the system ready for use) not delivered within 18 month timeframe. | Break project into smaller segments to ensure schedule being maintained. |
| Cost | Med | High | Proposed budget does not reflect all required activities. | Review costing to ensure that all state organization activities reflected. |
| Change Control | Med | Med | System requirements will change during the development time. | Ensure that a change control process is established that limits changes to those essential to business |

Legend
Prob = Probability of Occurrence
Imp = Impact